



7555-01

NATIONAL SCIENCE FOUNDATION

Notice of Buy American Waiver under the American Recovery and Reinvestment Act of 2009.

AGENCY: National Science Foundation (NSF).

ACTION: Notice.

SUMMARY: NSF is hereby granting a limited exemption of section 1605 of the American Recovery and Reinvestment Act of 2009 (Recovery Act), Pub. L. No. 111-5, 123 Stat. 115, 303 (2009), with respect to the purchase of the quiet seawater system balancing valves that will be used in the Alaska Region Research Vessel (ARRV). These valves regulate the proper flow of cooling water to the ship's major machinery.

DATE: [insert date of publication in the Federal Register].

ADDRESS: National Science Foundation, 4201 Wilson Blvd.,  
Arlington, Virginia 22230.

FOR FURTHER INFORMATION CONTACT: Mr. Jeffrey Leithead,  
Division of Acquisition and Cooperative Support, 703-292-  
4595

SUPPLEMENTARY INFORMATION: In accordance with section 1605(c) of the Recovery Act and section 176.80 of Title 2 of the Code of Federal Regulations, the National Science Foundation (NSF) hereby provides notice that on February 15, 2012, the NSF Chief Financial Officer, in accordance with a delegation order from the Director of the agency, granted a limited project exemption of section 1605 of the Recovery Act (Buy American provision) with respect to the quiet seawater system balancing valves that will be used in the ARRV. The basis for this exemption is section 1605(b)(2) of the Recovery Act, in that balancing valves of satisfactory quality are not produced in the United States in sufficient and reasonably available commercial quantities. The total cost of the three (3) required balancing valves (~\$43,500) represents less than 0.1% of the total \$148 million Recovery Act award provided for construction of the ARRV.

## I. BACKGROUND

The Recovery Act appropriated \$400 million to NSF for several projects being funded by the Foundation's Major Research Equipment and Facilities Construction (MREFC) account. The ARRV is one of NSF's MREFC projects. Section 1605(a) of the Recovery Act, the Buy American provision, states that none of the funds appropriated by the Act "may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States."

The ARRV has been developed under a cooperative agreement awarded to the University of Alaska, Fairbanks (UAF) that began in 2007. UAF executed the shipyard contract in December 2009 and the project is currently under construction. The purpose of the Recovery Act is to stimulate economic recovery in part by funding current construction projects like the ARRV that are "shovel ready" without requiring projects to revise their standards and specifications, or to restart the bidding process again.

Subsections 1605(b) and (c) of the Recovery Act authorize the head of a Federal department or agency to waive the Buy American provision if the head of the agency finds that:

(1) applying the provision would be inconsistent with the public interest; (2) the relevant goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or (3) the inclusion of the goods produced in the United States will increase the cost of the project by more than 25 percent.

If the head of the Federal department or agency waives the Buy American provision, then the head of the department or agency is required to publish a detailed justification in the Federal Register. Finally, section 1605(d) of the Recovery Act states that the Buy American provision must be applied in a manner consistent with the United States' obligations under international agreements.

## II. FINDING THAT RELEVANT GOODS ARE NOT PRODUCED IN THE UNITED STATES IN SUFFICIENT AND REASONABLY AVAILABLE QUALITY

Cavitation, which is the formation of small bubbles due to a vacuum being created when the flow of water is not

smooth, is an important factor to control for underwater radiated noise. Cavitation is most prevalent on propellers, but can occur whenever an improperly designed part of the hull moves through the water or water flows through an improperly designed portion of a system. The ARRV is specifically designed to meet a low underwater radiated noise standard that relates to fish hearing (Specification Section 073.2). This standard is critical to science operations in that if the noise from the vessel is too high, the behavior of the species being studied will be changed, which negatively impacts the population data being collected. If the vessel does not meet this low underwater radiated noise standard, the science mission requirements will not be met. All modern research vessels are being built with low underwater noise in mind not only because of improved science capabilities but also because of the growing understanding of the negative environmental effects of noise in the water, particularly for marine mammals.

The balancing valves are part of the seawater cooling system on the ARRV and are necessary to adjust proper flow rates to major equipment so that they operate at the proper

temperature. The valves are installed in the system piping, and the intake for this system connects directly to the sea through an opening in the hull. Any cavitation noise quickly travels through the water in the pipes and then radiates out into the water. The ARRV specification Section 523 specifies that the seawater cooling system is a "noise critical" system. This particular system is always in operation, and the design and installation of the system and its components affects the vessel's underwater radiated noise signature (noise emitting into the open water from the vessel). Orifice plates, flat plates with the correctly-sized hole are commonly used for balancing seawater systems in vessels, but they cause significant cavitation. Orifice plates are only suitable for vessels that are not designed to reduce underwater radiated noise. Therefore, technical requirements for selecting the quiet seawater system balancing valves used in the ARRV include:

1. Developed from materials suitable for use in seawater;
2. Designed for "Quiet Type": Valve body and internal components specifically designed for smooth flow and low cavitation;

3. Sized the same as the nominal pipe size in which they are installed (smaller size increases the chances of cavitation).

Failure to meet any of these technical requirements would have severe negative consequences for the project by preventing the vessel from meeting the specified low underwater radiated noise standard described above.

If the valves are not suitable for use in seawater, then they will prematurely fail, which could in turn cause overheating of the machinery or require operating the vessel at reduced performance until repairs can be made. Also, if not made for seawater, the body and internal component will erode, change the shape, and in turn cause cavitation.

If the valves are not specifically designed and sized for smooth water flow, cavitation will occur and the vessel's low underwater radiated noise requirement will not be met. The underwater radiated noise limit is being achieved through a material specification (specifically calling out hardware requirements to the shipyard) as opposed to a performance specification where the shipyard has

responsibility for meeting the requirement any way they see fit. Therefore, UAF bears full responsibility for this capability, which makes any deviation from the specifications an even greater risk to project success.

The "quiet" seawater system balancing valves are larger than conventional balancing valves, and future replacement of non-compliant valves would entail costly re-design and re-work of the entire cooling system. Because of the piping size, type, and location, this would cost between \$300,000 and 500,000 or roughly 10 times the cost of the compliant valves.

The market research included trade publication and web based searches for balancing valves of all types. Approximately thirty (30) companies were identified that manufacture balancing valves. Of these, only five (5) appeared to produce valves that would meet specification requirements (based on the information found on company websites) and therefore warranted additional investigation (via telephone and e-mail) by the shipyard. Of the five, only two (2) companies were identified that could produce low cavitation, marine-grade seawater system balancing valves; one was both foreign-owned and manufactured, while



the other was US-owned and foreign-manufactured. The shipyard decided to pursue the US-owned valve company as the best option, but this purchase would still require an exemption due to foreign manufacture.

The project's conclusion is that there are no US manufacturers who produce a suitable seawater system balancing valves that meet all of the ARRV requirements, so an exemption to the Buy American requirements is necessary.

In the absence of a US manufacturer that could provide requirements-compliant quiet seawater system balancing valves, UAF requested that NSF issue a Section 1605 exemption determination with respect to the purchase of a foreign-supplied, requirements-compliant quiet seawater system balancing valves, so that the vessel will meet the specific design and technical requirements that, as explained above, are necessary for this vessel to be able to perform its mission successfully. Furthermore, the shipyard's market research indicated that quiet seawater system balancing valves compliant with the ARRV's technical specifications and requirements are commercially available from a US company within their standard product lines, but are manufactured overseas, which necessitates an exemption.

NSF's Division of Acquisition and Cooperative Support (DACS) and other NSF program staff reviewed the UAF exemption request submittal, found that it was complete, and determined that sufficient technical information was provided in order for NSF to evaluate the exemption request and to conclude that an exemption is needed and should be granted.

### III. EXEMPTION

On February 15, 2012, based on the finding that no domestically produced quiet seawater system balancing valves met all of the ARRV's technical specifications and requirements and pursuant to section 1605(b), the NSF Chief Financial Officer, in accordance with a delegation order from the Director of the agency signed on May 27, 2010, granted a limited project exemption of the Recovery Act's Buy American requirements with respect to the procurement of quiet seawater system balancing valves.

Dated: February 17, 2012

Lawrence Rudolph,

General Counsel

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